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REMARKS

Claims 1-18 are currently pending in this application. Claims 1-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Giavi patent (U.S. No. 6,494,187) in view of the Pusic patent (U.S. No. 5,074,259). The Applicants respectfully traverse.

Claim 1 recites a method for controlling an electromechanical valve assembly, which includes a first solenoid, a second solenoid, and a valve armature positioned between the first and second solenoids. This method includes the limitation of changing a voltage applied to the first solenoid from a first polarity to a second polarity. Also, the method includes measuring an induced current in the first solenoid. Finally, the method includes holding the voltage at the second polarity for a predetermined time period at a predetermined amplitude to decrease the induced current, with one or both of the predetermined time period and the predetermined amplitude being based on the induced current.

The Giavi patent is generally directed to a method for controlling a control valve of a diesel injection system. The Examiner points to the Giavi patent (col. 3, lines 44-56) for teaching the limitation of changing the voltage applied to the first solenoid. However, as stated in the Office Action, the Giavi patent fails to teach changing the voltage from a first polarity to a second polarity. The Examiner further points to the Giavi patent (col. 4, lines 16-23 and Figure 2) for teaching the limitation of measuring the induced current in the first solenoid. However, close inspection of this reference shows that it merely illustrates an ideal or exemplary profile of current supplied to the first solenoid over a given time period. In other words, the cited section only explains an ideal relationship between the current in the first solenoid and the elapsed time. In that respect, the cited section fails to teach or suggest the step of actually measuring, detecting, or otherwise quantifying an amount of induced current in the first

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solenoid. Moreover, the Examiner also points to the Giavi patent (col. 4, lines 50-66) for teaching the limitations of holding the voltage at the second polarity for a predetermined time period at a predetermined amplitude, with one or both of the time period and the amplitude being based on the induced current. Analysis of the cited section only shows that the times are based on the crank angle. In this regard, the Giavi patent does not teach or suggest basing either the time period or the voltage amplitude on an induced current in the first solenoid. Also, as explained above, the Giavi patent does not teach or suggest changing the voltage to a second polarity. For these reasons, claim 1 and claims 2-6, which depend from claim 1, are allowable and nonobvious notwithstanding the Giavi patent.

The Examiner further points to the Pusic patent (col. 3, lines 24-49) for teaching changing the voltage from a first polarity to a second polarity. However, even if the combination of the Giavi patent and the Pusic patent were made as proposed by the Examiner, this combination still fails to teach or suggest the limitations of measuring an induced current in the first solenoid and holding the voltage at the second polarity for the predetermined time period at the predetermined amplitude, one or both of which are based on the induced current. Therefore, the Applicants respectfully submit that claim 1 and claims 2-6, which depend from claim 1, are allowable and nonobvious notwithstanding the Giavi patent and the Pusic patent.

Regarding claims 2, 8, and 15, the Examiner points to the Giavi patent (col. 4, lines 60-66) for teaching increasing the predetermined time period when the induced current has a positive value. Moreover, regarding claims 4, 10, and 17, the Examiner refers to the same section of the Giavi patent for teaching decreasing the predetermined time period when the induced current has a negative value. However, close examination of the cited section reveals that the Giavi patent merely teaches that certain time periods can be determined or

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defined according to the crank angle of the engine. For this reason, the Giavi patent cannot be cited for teaching or suggesting adjusting the predetermined time period according to any change in an induced current of the first solenoid. It is therefore respectfully submitted that claims 2, 4, 8, 10, 15, and 17 are allowable and nonobvious notwithstanding the Giavi patent.

Furthermore, regarding the rejection of claims 3, 9, and 16, the Examiner cites the Giavi patent (col. 4, lines 24-48) for teaching the element of increasing the predetermined amplitude when the induced current in the first solenoid has a positive value. Similarly, regarding claims 5, 11, and 18, the Examiner points to the same section of the Giavi patent for teaching decreasing the predetermined amplitude when the induced current has a negative value. However, the cited section of the Giavi patent only teaches that the movement of the valve slide is detected when an induced current exists in the second solenoid. In this respect, the Giavi does not teach or suggest actually measuring a positive or a negative induced current in the first solenoid or adjusting the amplitude of voltage in the first solenoid based on that measurement. Therefore, the Applicants respectfully submit that claims 3, 5, 9, 11, 16, and 18 are allowable and nonobvious notwithstanding the Giavi patent.

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In view of the foregoing amendments and remarks, Applicant submits that all of the claims remaining in the case, namely claims 1-18, are allowable. The Examiner is invited to telephone the Applicant's undersigned attorney at (248) 223-9500, if any unresolved matters remain.

Respectfully submitted,

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